

No Lecture Next Week (16 Nov 2009)

**This would be a good time to work on the
course project.**

Next Lecture on 23 Nov

LECTURE 10

Presenting Information

Science Writing

Why Publish

(publish or perish)

- Communicate your work to others
- Convince funding agencies that their money was not wasted
- Convince someone to hire you
- Convince your boss that you should be promoted (or given tenure)
- Communicate with the public
- Rule of thumb:
Publish at least one first-author paper a year.
- Do not turn down an opportunity to be a co-author *unless* you
 - did not contribute anything to the paper
 - disagree with the results of the paper

Writing a Paper

1. Have a result that is worthy of publication.
2. Decide type of article and which journal to send it to.
 - Letter
Short (4 pages), timely
 - Article
Usual type, any length, stand along
 - Supplemental Article
Data, catalogues, archived material
 - Review Article
Usually invited, summarize a topic
3. Read the *Instructions to Authors* for that journal
 - Journal style
 - Keywords
 - Appropriate content
4. Write a first draft
 - Detailed outline
 - Just get it done!

5. Send first draft to co-authors

- Decide on contents
- Decide on who will do what.
- Set tasks
- Set deadlines!

6. Write a detailed draft and iterate with co-authors until the paper is done.

7. Worry about details of formatting, grammar, and non-content details after the final version has been written.

Sections of a Paper

- Title
 - Short and descriptive. Beware of humour
- Author List
 - First author is usually the person who wrote the paper
 - Co-authors in order of contribution
- Abstract
 - Short, summarize the article
 - Often all that people read!
- Subject/Keywords
 - Follow the journal's rules
- Introduction
 - Historical overview, big picture
 - Why was this research done
 - Prime the reader for the rest of the paper
- Data Analysis
 - Describe your data and how you got it
 - Describe what you did
 - Details so that work can be reproduced
 - Calibration

- Results
 - Describe what you found
 - Not the place for interpretation
 - Use figures and tables
- Discussion
 - Interpret the results. What does it mean?
 - What did you learn?
 - Compare results to other work
- Summary
 - Brief
 - Key results
 - Implications, big picture
 - Often the only part read after the Abstract!
- References
 - Cite *all* work that you referenced
 - Do not pad with your work
 - Include competitors
- Acknowledgements
 - Funding
 - Data
 - People
 - Services

- Supplementary Information
 - Other material
 - Data tables
 - Analysis details
 - Derivations
 - Check journal's policy
- Tables
 - List data
 - Summarize results
- Figures
 - Black and white
 - Not too complex
 - Self-contained (scales, coordinate grids, axis labels, legends, &c.)
 - Supplement, not replace discussion in text

Include only the appropriate sections.

Submitting a Paper

1. Follow the journal's instructions to submit.
2. Referee assigned to paper
 - ensure high quality
 - protect against fraud
3. Consider *all* of the referee's comments.
 - Make appropriate changes
 - Make a note of any changes
 - Write a detailed response to any comments that you disagree with
 - Send revised paper, with your comments and notes, to the journal
4. Repeat the process until the referee accepts or rejects (rare!) the paper.
5. Science editor makes final decision on publication.

Science Talks

- Speak loudly and clearly
- Do not read a prepared text, but use notes
- Face the audience and make eye contact
- Use visuals to illustrate what you say. Do not just read from them.
- Keep visuals simple and informative
- *Have a back-up of your talk.*
- *Practice your talk.*
- Have supplemental slides for details that you skip over.
- Anticipate questions (it comes with practice)
- Plan ahead what to do if you run out of time

- *Relax!*
 - You are the expert.
 - You know more than your audience does.
 - The person asking the question is probably wrong.